Procedure SSO-019

Risk Based Inspection Program – Inspection Prioritization

Current Version: 1/27/2025

Scope: This procedure describes the NJDOT's risk-based inspection program prioritization process. The NJSSOA's risk-based inspection program is designed to prioritize inspections to address safety concerns and hazards associated with the highest levels of safety risk. The NJDOT performs risk-based monitoring activities and makes decisions according to risk levels to initiate risk-based inspections.

Requirement: This procedure is required to comply with the Federal Transit Administration (FTA) Special Directive 22-38 Under 49 U.S.C. § 5329 (k) and 49 CFR Part 670 – The State must develop and implement a risk-based inspection program.

Procedure:

(1) **Risk-Based Monitoring - Safety Data Metrics & Analysis:** – The NJDOT performs comprehensive data analysis of various data types, including analysis of Safety Program Data, Maintenance Data, & Inspection Data from rail transit agencies to identify safety concerns and hazards. The analyses are performed continuously, therefore all changes at each rail transit agency are reflected in the NJDOT's risk-based inspection program. The tables on Pages 5-7 outline the ongoing risk-based monitoring analysis activities conducted by the NJDOT. These analysis activities will evolve over time based on data collection to encompass the complexity of the rail transit agencies.

(2) **Data Analysis Results:** Analyses findings are added to the RBM Analysis & RAM database, of which safety concerns are subsequently evaluated for risk-based inspection decision making, which includes prioritizing the findings for inspection.

(3) **Data Analysis Evaluation:** The Program Manager and designated safety staff will hold a meeting to discuss and evaluate analysis findings utilizing the NJDOT Risk Assessment Matrix (RAM). This matrix aids in calculating risk levels and prioritization of safety concerns.

- **RAM Population -** To perform the assessment, designated staff will input findings into the risk assessment matrix and complete the seven (7) categories. The score or rating of each category may be calculated differently and should be tailored to the collected data.
- **Affected Persons –** this category includes the type of individuals potentially impacted. In the 'Affected Persons' category, select all that apply from the following four (4) groupings:
  - **Public** - Anyone person who could be impacted that is not a Passenger, Contractor or Employee
  - **Passenger** - A passenger is an occupant of a train other than the person(s) operating it or a member of the crew.

- **Contractor** - a person or company that undertakes a contract to provide materials or labor to perform a service or do a job.
- **Employee** - a person employed directly by the transit agency.

i. **Location –** this category includes the locations where the finding (safety concern) may occur. In the 'Location' category, select all that apply from the following three (3) groupings:

- **Right of Way –** dedicated land for tracks where the public rides and where employees/contractors may occupy.
- **Public –** any location the public is allowed outside of the right of way which includes land adjacent to the right of way (examples include: stations, platforms, roads, parking lots)
- **Grounds –** Owned by the transit agency but not part of the Right of Way (examples include: shop, yard, train storage and facilities).

ii. **Frequency of Exposure** – this category includes the frequency at which it may occur based on historical data. In the 'Frequency of Exposure' category, select one grouping, based on historical data and analysis of the transit agency, from the following five (5) groupings:

- **Frequent -** Likely to occur frequently. Will be continually experienced.
- **Probable -** Will occur several times per year. Will occur frequently.
- **Occasional -** Likely to occur around once per year.
- **Remote -** Likely to occur at sometime in the lifecycle.
- **Improbable -** Unlikely to occur, but possible. So unlikely, it can be assumed it will not be experienced.

iii. **# of People Exposed** – this category includes the number of people with exposure. In the '# of People Exposed' category, select one grouping from the following three (3) groupings:

- **15 or more**
- **3-15**
- **Less than 3**

iv. **Hazard Consequence**– this category includes the type of consequences. In the 'Hazard' category, select the worst-case scenario that applies from the following groupings:

- **Miscellaneous high risk** - Miscellaneous high risk hazard consequence not listed
- **Collision or derailment** - A collision with another train or passenger car or derailment is possible.
- **Natural disaster/ Act of God** - Natural weather, tornados, storms, branches falling
- **Miscellaneous medium risk** - Miscellaneous medium risk hazard consequence not listed

- **Work is around Hazardous Equipment -** Employees or contractors are exposed to hazardous energy from equipment (mechanical, pneumatic, electrical, gravitational, chemical)
- **Fire is possible** - A potential fire is possible or imminent
- **Speed/Signals issue** - There is a speed or signal issue that could be equipment, wiring, electrical, human or some other cause
- **Untrained for task** - Employees are untrained for the task expected
- **Civil Disobedience** - Public or passengers cause civil disobedience - the refusal to comply with rules, regulations or laws.
- **Passenger issue** - One or more passengers will have an issue, either physical (injury), potential issue (slip, trip, fall)
- **Miscellaneous low risk** - Miscellaneous low risk hazard consequence not listed
- **In the right of way -** One or more people will be directly on the right of way
- **Traffic interruption** – Traffic on roadways will be interrupted
- **No PPE/Incorrect PPE worn** - No PPE or the incorrect PPE is worn
- **Working at an elevated height** - This requires an employee or contractor to work at an elevated height above 4 feet from a standard platform

v. **Probability** – this category includes the likelihood of an event or situation occurring. In the 'Probability' category, select the probability. The four (4) groupings are:

- **Certain** - The hazard cannot be avoided.
- **Probable** - The hazard is unlikely to be avoided.
- **Possible** - The hazard can be avoided.
- **Unlikely** - The hazard is easily avoided.

vi. **Severity –** this category includes the impact of an event or safety concern. In the 'Severity' category, select the severity. The four (4) groupings are:

- **Catastrophic** - "Multiple deaths, permanent total disability; Irreversible significant environmental impact; Property damages greater than $100,000"
- **Serious** - "Death, partial disability, hospitalization, Severe injury; Reversible major environmental impact; Property damages greater than $20,000 but less than $100,000"
- **Marginal** - "Minor Injury; Reversible minor environmental impact; Property damages greater than $5,000 but less than $20,000"
- **Negligible** - "First aid; Minimal environmental impact; Property damages less than $5,000"

Note: The score or rating of each category may vary and should be tailored to the collected data. In addition, this is limited to RTA damage.

(4) **Total Risk Score -** After completing all categories, a 'Total Risk' score is calculated, which corresponds with the ranges, categories, and inspection target intervals described in Table 1.

Table 1 – NJDOT Inspection Prioritization

Total Risk Score Range	**Risk Level Prioritization Category**	**Inspection Target Interval**
76-100	Extreme Risk	**Immediate Action Required** – RBI activity (meeting, site visit, document review) based on schedule within three **(3) calendar days.**
51-75	High Risk	**Urgent Action Required** - RBI activity (meeting, site visit, document review) based on schedule within **thirty (30) calendar days**
26-50	Medium Risk	**Action Required** - RBI activity (meeting, site visit, document review) based on schedule in the **within the next calendar quarter.**
0-25	Low Risk	**Action may be required** - RBI activity (meeting, site visit, document review) based on schedule **needed beyond the next calendar quarter,** or if no action is needed, the item is monitored for any potential recurrence.

(5) **Risk-Based Inspection Decision Making** - Thereafter, the Program Manager and designated staff will evaluate the RAM results and determine if an inspection is required. The NJDOT will perform at least four (4) onsite risk-based inspections per year at each rail transit agency.

- **If an inspection is deemed not required**, the group will update database with the decision. This determination generally only applies to 'Medium' & 'Low' risk findings. The NJDOT will perform ongoing monitoring.
- **If an inspection is deemed required**, the group will determine the type of inspection(s) *(e.g., equipment, infrastructure, and practices specific to each RFGPTS, event verification, ongoing monitoring, defects and corrective or remedial action; and CAPs and safety risk mitigation verification)* and decide whether it will be announced or unannounced. The determinations will be recorded in the database.

Note: The NJDOT SSOA reserves the right to make a program-based decision that supersedes the RAM results. This may result in a change to the Inspection Target interval (timeframe for inspection activity) or the decision to not perform inspections based on schedule and risk. All decisions are documented in the database.

Note: A Risk Monitoring Topic Status Tracking Log is generated and maintained for safety concerns categorized as Extreme Risks (and some High risks). This log will

encompass risk descriptions as well as related investigations, internal audits, CAPs, Direct Inspections, and includes a continual list of check-in discussions.

(6) **Internal Notifications & Inspection Prioritization** – As outlined in Procedure SSO-014, the NJDOT Scheduling Coordinator will monitor the "NJDOT RBI Index". In addition, the group will notify the NJDOT Scheduling Coordinator of completed assessments, who will review the pertinent data in the database, in conjunction with the Program Manager, and prioritize inspections across all four systems by total risk score, risk level prioritization, and inspection interval. Thereafter, the NJDOT Scheduling Coordinator will schedule any inspections following the requirements outlined in Procedure SSO-014.

Note: As outlined in SSO-014, the NJDOT performs "Core" inspections (Standard Oversite Inspections) covering a wide range of activities. In some cases, these inspections may be reclassified (upgraded) to risk-based inspections, depending on certain factors, including safety concerns and NJDOT inspection findings.

(7) **Continuous Monitoring** – Upon completing initial risk-based inspections, the NJDOT SSO holds a meeting to determine ongoing monitoring frequency and oversight activities, guided by RAM results and programmatic decision-making.

(8) **Annual Prioritization Review** – The NJDOT Scheduling Coordinator and designated staff will annually evaluate the list of risk-based inspections to determine if the assigned priority is still appropriate based upon actual rail transit agency mitigations, along with NJSSOA's own findings. This ensures that the NJDOT performs consistent and ongoing risk-based inspections of each rail transit agency.

Table 2 - Safety Program Data Review & Analysis Elements

Category	RBM Activity (Data Analysis)	Documentation	Frequency of Data Analysis			
			As Needed	Monthly	Quarterly	Annually
Safety Events	Upon notification of a safety event, assess whether an on-site inspection and/or document review is required (event verification). Factors that may determine if an on-site inspection is performed are severity, location, injury/fatality, hazard, risk, and the frequency of events, etc.	Investigations (2-HR Notification, 24-Hour Summary, Investigation Report); Daily Dispatch Reports	X			
Safety Events	Review and assess the number and type of safety events by rail transit agency, area, such as by line, portion of track, or station over a period. In addition, the NJDOT will consider causal data, such as equipment failures, human factors, or poor maintenance.	Investigations (2-HR Notification, 24-Hour Summary, Investigation Report); Daily Dispatch Reports; Monthly Reporting (Event Logs; Monthly Safety Meeting Minutes; RBI Report)	X			X
Rules Obedience	Review and assess Efficiency Testing/Train Ride evaluation results.	Efficiency testing, Train Ride Evaluations, Processes for ensuring rules obedience	X			X
Safety Performance Targets	Review and assess compliance with Safety Performance Targets.	Monthly Reporting, RTA SPT Evaluation Results, Monthly Safety & Board Meeting Minutes	X			X
Corrective Action Plans	Review Corrective Action Plans, as well as progress towards completing plans, timeliness, and completion.	Investigations (2-HR Notification, 24-Hour Summary, Investigation Report); CAP Submissions/Closure Requests; Monthly Reporting (CAP Tracking Logs, Hazard Tracking Logs, Monthly Safety Meeting Minutes), Internal Audits	X	X		

Safety Risk Mitigations	Review implementation and effectiveness of safety risk mitigations.	Investigations (2-HR Notification, 24-Hour Summary, Investigation Report); Daily Dispatch Reports; Monthly Reporting;(Hazard Tracking Logs; Monthly Safety Meetings Minutes); Safety Certification documentation	X	X		

Table 3 - Maintenance & Inspection Data Review & Analysis Elements

Category	**RBM Activity (Data Analysis)**	**Documentation**	**Frequency of Data Analysis**			
			As Needed	**Monthly**	**Quarterly**	**Annually**
RTA-Identified Defects	Review the number and status of defects and analysis results collected directly from the RTAs. The NJDOT may consider: Normalizing this data over a standard distance, such as open defects per mile, average time to close defects, or reported defects per mile weighted by severity to identify substantial changes to the number of defects reported over a given period. Assessing recurring deficiencies identified in either inspection processes or maintenance or performance records. Assessing if the transit agency is following their defined safety risk management process.	Daily Dispatch Reports, Inspection and maintenance records, work orders, and reports; RTA analysis results; records of failures and defects; Monthly RBI Report; Hazard Tracking Logs	X			X

SSOA-Identified Defects	Upon notification of an immediate safety concern discovered by an inspector during an SSO Inspection, assess whether an additional on-site inspection and/or document review is required. Factors that may determine if an on-site inspection is performed are severity, location, injury/fatality, hazard, risk, and the frequency of events, etc.	Notification	X			
SSOA-Identified Defects	Review and assess repeat deficiencies identified by the NJDOT. The NJDOT may consider comparing SSOA-identified defects against RTA-identified defects.	ACID Records (Inspection Reports & Findings), RBI RTA Defect Log	X			X
Inspection & Maintenance Programs	Review and assess adherence to Inspection & Maintenance Programs. The SSOA will focus efforts on inspections and maintenance activities that present a higher risk if not completed. The SSOA may consider assessing compliance over a set period and the number of consecutive missed inspections in the same period.	Monthly RBI Report (I&M KPIs), Inspection and maintenance records, work orders, and report forms, Monthly Safety Meeting Minutes	X	X		X

Update:

- January 27, 2025 – Initial release

Flowchart